

IN THE CLAIMS:

1. (Original) An enlarged digital image providing method using data communication networks, the method for providing a digital image from a server to a client via digital networks and providing an enlarged digital image relative to a designated domain as a client viewing a displayed image designates a specific domain of the displayed image for request of enlarged display, the method comprising the steps of:

creating an original digital image document (Level = N) via shooting an object;

serially creating at least one reduced image document (Level = N - 1 ~ Level = 1) having a resolution lower than the original digital image document based on the original digital image document;

creatively dividing the serially created reduced image documents and the original digital image document into a multiplicity of segmental image documents;

storing in a storage at server side each of the multiplicity of the segmentally divided created image documents, reduced level information for indicating reduced image level and position information (X, Y) for indicating positions of entire image document before division;

providing as an initial display image a reduced image document (Level = 1) of final level out of the reduced image documents in

response to request by a client for image display;

receiving a request when a client designates a specific domain of a display image ( $\text{Level} = r$ ,  $1 \leq r \leq N - 1$ ) currently displayed on a display window as a requested enlarged domain and requests transmission of enlarged image ( $\text{Level} = r + 1$ ) for enlarged display of the domain; and

transmitting from server side to client side at least one segmental image document ( $\text{Level} = r + 1$ ) necessary for constructing an image of requested enlarged domain in response to contents of received request to prompt the transmitted segmental image document to be combined for implementation of displayed image.

2. (Original) The method as defined in claim 1, further comprising the steps of:

receiving contents of a request when a client indicates a moved display domain to request a moved display for moving a domain currently displayed on a display window while an enlarged image ( $\text{Level} = r'$ ,  $2 \leq r \leq n$ ) is being viewed, and

transmitting from server side to client side at least one segmental image document ( $\text{Level} = r'$ ) necessary for structuring an image of designated moved display domain based on the received request of contents, and enabling the selected segmental image document to be additionally provided from storage to client side

via communication means, thereby to allow a priorly transmitted segmental image document to be combined with an additionally transmitted segmental image document for constitution of an image of moved display domain.

3. (Original) The method as defined in claim 1, wherein segmental image documents created by dividing the sequentially reducibly created image documents are respectively of the same size at all levels.

4. (Original) The method as defined in claim 2, wherein segmental image documents created by dividing the sequentially reducibly created image documents are respectively of the same size at all levels.

5. (Original) The method as defined in claim 1, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are provided as one group of image document style to be sequentially and alternatively displayed when a client views same.

6. (Original) The method as defined in claim 2, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are provided as one group of image document style to be

sequentially and alternatively displayed when a client views same.

7. (Original) The method as defined in claim 1, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are created by dividing the multiplicity of image documents obtained by panoramic photographing according to segmental image documents and then combining same mosaically.

8. (Original) The method as defined in claim 2, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are created by dividing the multiplicity of image documents obtained by panoramic photographing according to segmental image documents and then combining same mosaically.

9. (Original) An enlarged digital image providing apparatus using data communication networks, the apparatus for providing a digital image from a server to a client via digital networks and providing an enlarged digital image relative to a designated domain as a client viewing a displayed image designates a specific domain of the displayed image for request of enlarged display, the apparatus comprising:

means for serially creating at least one reduced image document (Level = N - 1 ~ Level = 1) having a resolution lower than

the original digital image document based on an original digital image document (Level = N) created via shooting an object;

means for creatively dividing the serially created reduced image documents and the original digital image document into a multiplicity of segmental image documents;

means for storing in a storage at server side each of the multiplicity of the segmentally divided created image documents, reduced level information for indicating reduced image level and position information (X, Y) for indicating positions of entire image document before division;

communication means for communicating with client via data communication networks to receive client request and to respond thereto; and

image transmission control means for receiving a request when a client designates a specific domain of a display image (Level =  $r$ ,  $1 \leq r \leq N - 1$ ) currently displayed on a display window as a requested enlarged domain and requests transmission of enlarged image (Level =  $r + 1$ ) for enlarged display of the domain to select a segmental image document (Level =  $r + 1$ ) necessary for constituting an image for requested enlarged domain and to allow the selected segmental image document to be provided to client side from the storage through the communication means, thereby combining the transmitted segmental image document to enable to constitute a

display image.

10. (Original) The apparatus as defined in claim 9, wherein the image transmitting control means receives contents of a request when a client indicates a moved display domain to request a moved display for moving a domain currently displayed on a display window while an enlarged image (Level =  $r'$ ,  $2 \leq r \leq n$ ) is being viewed, and selecting at least one segmental image document (Level =  $r'$ ) necessary for structuring an image of designated moved display domain based on the received request of contents, and enabling the selected segmental image document to be additionally provided from storage to client side via communication means, thereby to allow a priorly transmitted segmental image document to be combined with an additionally transmitted segmental image document for constitution of an image of moved display domain.

11. (Original) The apparatus as defined in claim 9, wherein segmental image documents created by dividing the sequentially reducibly created image documents are respectively of the same size at all levels.

12. (Original) The apparatus as defined in claim 10, wherein segmental image documents created by dividing the sequentially

reducibly created image documents are respectively of the same size at all levels.

13. (Original) The apparatus as defined in claim 9, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are provided as one group of image document style to be sequentially and alternatively displayed when a client views same.

14. (Original) The apparatus as defined in claim 10, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are provided as one group of image document style to be sequentially and alternatively displayed when a client views same.

15. (Original) The apparatus as defined in claim 9, wherein the original digital image documents and reduced image documents (Level = 1 ~ N) are created by dividing the multiplicity of image documents obtained by panoramic photographing according to segmental image documents and then combining same mosaically.

16. (Original) The apparatus as defined in claim 10, wherein the original digital image documents and reduced image documents

(Level = 1 ~ N) are created by dividing the multiplicity of image documents obtained by panoramic photographing according to segmental image documents and then combining same mosaically.

Please add new claims 17-28.

17. (New) An apparatus for providing an enlarged digital image, the apparatus providing a digital image to a client via a digital network and transmitting an enlarged digital image of a designated domain of the digital image being viewed by the client in response to a client's request, comprising:

A. data storage means for storing "L"th-level partial images obtained by dividing a "L"th-level image of lower resolution by "j" (where "j" and "L" are natural numbers), "M"th-level partial images obtained by dividing a "M"th-level image of higher resolution by "k" (where "k" and "M" are natural numbers, "j" < "k", and "L" < "M"), position information (X, Y) intended to map the "M"th-level partial images to positions of the "L"th-level image or "L"th-level partial images, and reduction level information intended to represent reduction levels by which the "L"th-level image is reduced to the "M"th-level image;

communication means for receiving the client's request and responding to the client's request while communicating with the



client; and

image transmission control means for extracting one of the "M"th-level partial images having position information of a designated domain or neighboring designated domain from the data storage means and transmitting the "M"th-level partial image to the client when enlargement of the designated domain of one of the "L"th-level partial images is requested.

A. 18. (New) The apparatus as set forth in claim 17, wherein, if an image having resolution higher than the "M"th-level image exists, the data storage means stores the "M"th-level partial images, the position information (X, Y) and the reduction level information while considering the "M"th-level image and the image having resolution higher than the "M"th-level image as the "L"th-level image and the "M"th-level image, respectively.

19. (New) The apparatus as set forth in claim 17, wherein, when panning of a plurality of displayed "M"th-level partial images is requested by the client, the image transmission control means extracts remaining "M"th-level partial images except for the displayed "M"th-level partial images from the data storage means to

construct a panned image, transmits the extracted remaining "M"th-level partial images to the client, and displays the panned image in which the displayed "M"th-level partial images are combined with the extracted remaining "M"th-level partial images.

A. 20. (New) The apparatus as set forth in claim 18, wherein, when panning of a plurality of displayed "M"th-level partial images is requested by the client, the image transmission control means extracts remaining "M"th-level partial images except for the displayed "M"th-level partial images from the data storage means to construct a panned image, transmits the extracted remaining "M"th-level partial images to the client, and displays the panned image in which the displayed "M"th-level partial images are combined with the extracted remaining "M"th-level partial images.

21. (New) The apparatus as set forth in claim 17, wherein the "M"th-level partial images are obtained by dividing the "M"th-level partial image by a same number or different numbers in vertical and horizontal directions.

22. (New) The apparatus as set forth in claim 18, wherein the "M"th-level partial images are obtained by dividing the "M"th-level

partial image by a same number or different numbers in vertical and horizontal directions.

23. (New) The apparatus as set forth in claim 19, wherein the "M"th-level partial images are obtained by dividing the "M"th-level image by a same number or different numbers in vertical and horizontal directions.

A. 24. (New) The apparatus as set forth in claim 20, wherein the "M"th-level partial images are obtained by dividing the "M"th-level image by a same number or different numbers in vertical and horizontal directions.

25. (New) The apparatus as set forth in claim 21, wherein "k" is a square of "M".

26. (New) The apparatus as set forth in claim 22, wherein "k" is a square of "M".

27. (New) The apparatus as set forth in claim 23, wherein "k" is a square of "M".

A 28. (New) The apparatus as set forth in claim 24, wherein "k" is a square of "M".

---